Citi Capital Advisors

Infrastructure Sector Market Review & 2010 Outlook

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Executive Overview

Scope. This report analyzes equity-driven infrastructure deals that closed in 2009, contrasts activity with 2008 and provides geographic and sector perspectives. We investigate OECD and emerging market deals across sectors (Oil & Gas, Power, Renewable Energy, Telecom, Transport and Water & Sewage) and by size, location and type of financing employed. When appropriate, we also examine the effect of various stimulus programs and include our perspective. Finally, we highlight important sector developments and present our outlook for 2010.

2009 in review. Overall, 2009 promised much but delivered little. Many in the market had expected a wave of distressed opportunities, which only partially materialized as the lack of economic visibility resulted in fewer transactions being consummated. Extreme investor caution led to very low buyer valuations offered while seller value expectations remained unrealistically close to pre-crisis levels. At the same time, debt markets (both bank and bond) returned to some degree, but the overall financing environment remained very challenging.

Outlook for 2010. We anticipate substantially more activity in 2010, even though many of the drivers that prevailed in 2009 still persist. The consensus view is that more economic visibility exists now than in 2009; while remaining cautious, many investors no longer feel obliged to use very pessimistic assumptions in modeling deals. In addition, as sellers move from denial to acceptance regarding value, we expect that buyer and seller expectations will begin to converge, allowing deals to close.

Investors will also benefit from the ongoing shortage of equity, as there were very few funds that raised new capital in 2009. The capital raised in 2006 and 2007 is now largely invested, and those managers with commitments remaining are taking their time to invest in what remains a difficult fundraising market. Funds with undrawn capital and direct investors may now have a good opportunity to choose their deals and enjoy the benefits of reduced competition.

We anticipate that debt financing will continue to remain relatively challenging. While pricing and availability did improve through the course of 2009, this improvement may not necessarily continue at the same pace. For new deals, this should favor those funds and investors with superior financing expertise and banking relationships. We also expect that the investing focus will remain on core infrastructure, with peripheral infrastructure being much harder to finance.

Outlook beyond 2010. The investment outlook remains positive beyond 2010. We expect that the investing environment for infrastructure will remain particularly attractive relative to the cycle. Although we expect upward pressure on asset pricing as debt markets and fundraising markets recover, we also expect a new, larger source of deal flow—namely, strategic divestments should increase as prices improve.

The prospect of a potentially faster-than-expected recovery in traffic (e.g., for transportation demand) and the risk of long-term inflation in some countries is an upside scenario for most infrastructure investments as revenue is often linked to inflation, whereas cost of debt typically is not.

Conclusion. We believe that the investment case for infrastructure remains strong for three reasons: (a) the need for governments to improve infrastructure is pressing as governments find ways to finance their new infrastructure projects, (b) the recent crisis has seen most infrastructure businesses prove their resilience, and (c) the investing environment for infrastructure looks set to remain particularly attractive for the medium term.

Key Trends

2009 promised much, but delivered little. Many in the market had expected more distressed opportunities than what actually materialized. In early 2009, the principal source of funding for infrastructure debt was short-term bank loans. Lending conditions were stringent. Debt financing, when available, was at higher spreads and fees, with shorter tenors and more onerous covenants. The higher risk profile of projects, combined with a reduced risk appetite of bond/debt investors, resulted in a higher amount of equity capital needed to back projects.

In the second half of 2009, the tenor had increased and spreads had started to tighten. Banks showed a preference to refinance debt selectively—focusing primarily on existing projects with established operating cash flow rather than on greenfield projects with untested user-pay risk. The syndicated loan market stalled, and many deals closed as club transactions which slowed the speed of closure.

Trends from 2009 are expected to continue, albeit at a more moderate pace. As a result of wider spreads for project risk and the significant project refinancing and interest swap resetting requirements over the coming years, we expect infrastructure project re-gearing to continue to remain tempered for the foreseeable future. An important response by some sponsors to the global financial crisis of 2009 has been to slow down the pace of capital deployment. In some cases, equity was raised or conserved to mitigate debt issuance in advance of scheduled capital improvements or expansions. In other cases, equity conservation served to deleverage project balance sheets. Some equity conserving exercises were due to changes in sponsor policies whereas others were at the encouragement of commercial bank lenders at the time of debt refinancing. In all cases, such positive actions are expected to prove beneficial in 2010.

In 2010, the global economy is expected to show positive growth, although its impact across different infrastructure subsectors remains unclear. Financial conditions have improved on the back of narrowing money market spreads and buoyant corporate bond and equity markets. Lending conditions, when compared with 2009, have eased considerably. The massive “backstop” rescue measures from other European governments, the IMF and the ECB reduce the possibility that Europe’s sovereign debt crisis will destabilize the global banking system and financial markets. As a result, the risk of surging borrowing costs leading to a rapid wave of sovereign defaults or debt restructuring among these countries has been significantly reduced.

Financial markets have been relatively resilient in emerging markets, where sovereign bond spreads have continued to narrow. We believe that the recovery will support the ongoing need for new infrastructure to meet the demand generated by economic and population growth in developing countries and the refurbishment and maintenance of existing, but aging, infrastructure in developed countries. This also bodes well for the usage and revenue growth of operating projects.

Deal backlog and private capital scarcity supportive of increased expected returns. Off the back of this expected uplift in economic growth, and the continuing backlog of planned infrastructure projects, we anticipate that the volume of new projects will exceed the markets’ funding ability. This is due to diminished funding capacity of banks and capital markets and the reduced borrowing capacity of governments. At a time of increasingly tight budgetary constraints and significant infrastructure spending needs, there is growing acceptance that private sector involvement in the construction and management of public infrastructure is both necessary and desirable.

There are many sources of funding for infrastructure projects: foreign export credits; credit and loan guarantees by multilateral agencies; multilateral co-financing facilities; commercial bank debt often made available through member bank syndicates; public finance from sources such as municipal or special authority borrowings; public finance instruments such as general obligation, tax increment, sales tax and assessment bonds; revenue bonds; public-private integrated projects and private equity placements. This mix varies widely between countries and project types, and private equity capital contributed often constitutes a small percentage of the overall funding structure (especially for large projects).

Private capital raised in 2006 and 2007 is now largely invested, and managers with committed but undrawn capital are drawing down remaining commitments at a slower pace. Funds with uninvested capital, as well as

direct investors, now have better opportunities to choose deals while enjoying the benefits of reduced competition.

Project financing via bond issuance is expected to increase over loan financing. This will certainly occur outside Western Europe and will be especially true for mature projects seeking to begin debt amortization, as well as for large new projects whose debt requirements cannot be accommodated solely through traditional bank financing. This trend is expected to be the result of continuing liquidity constraints in the bank market along with stronger security and covenant requirements; both of these factors will reduce the relative benefits (in terms of flexibility and pricing) to sponsors opting for bank financing. With hybrid financings—partial bank and partial bond funding—likely to become popular, we expect an increase in both the number of infrastructure projects being financed as well as the types of financing solutions employed. Overall this will result in expanded opportunities for private participation in infrastructure finance.

Privatization will bring new opportunities. Government budgets, the traditional source of infrastructure finance, are under significant pressure. Privatizations of state-owned assets will be an important driver, and infrastructure will be center stage. Already almost two-thirds of all privatizations in the OECD area have concerned utilities, transport, telecommunications and oil facilities. In emerging markets, too, privatization activity has been vigorous. The extent to which privatization actually translates into asset sales will of course depend on a number of factors, including political developments, general economic conditions, the appetite of the general public and the level of maturity of the market for infrastructure. Many new projects are expected to use the public/private partnership model (PPP) framework, although some structures are likely to migrate toward the availability-based payment model and away from the more established user-based payment model. New business models with private sector participation, notably variants of PPPs, will offer private sector capital and expertise.

Private fundraising is expected to remain subdued but pick up in the second half of 2010. With notable exceptions, there were far fewer private funds raised in 2009 than in previous years, and we expect this trend to persist. Sponsor quality is expected to be an increasingly important differentiator. Financial sponsors with strong brands and track records that are able to add value to their portfolios are expected to be favored.

Investing in infrastructure is even more attractive now. The current economic environment poses unique challenges, and presents excellent opportunities, for private infrastructure investors. Secular demand drivers for infrastructure assets continue to strengthen. This demand is being driven by major factors such as global economic growth, technological progress, climate change, urbanization and growing congestion. Institutional interest in infrastructure has further increased given the need to match long-term liabilities with the stable inflation linked long-term cash flows that infrastructure investments provide. The search for yield in an environment of extremely low interest rates has also been very supportive. We believe that as a result of capital scarcity and the impact of the current economic downturn, new infrastructure investments have the potential to offer above-average returns relative to historical returns.

Assumptions. Our 2010 outlook is predicated on a number of assumptions and is not entirely without risk. Despite encouraging signs on activity, the fragility of the recovery, a frail labor market and possible headwinds coming from (largely European) financial markets underscore the need for caution in the removal of policy support. Central banks have already begun to rein in the exceptional liquidity stimulus injected during the recession. We expect that further action in this area will be guided by financial conditions. Considerations include (a) the pace and direction of economic recovery and its impact across all or specific infrastructure sectors; (b) sustainability of interest rates at existing low levels; (c) liquidity in financial markets, whether bank lending will remain adequate and whether longer term maturities can be reintroduced into the bond markets; and (d) the introduction of amortizing debt structures for mature projects with strong and sustainable cash flows.

Infrastructure Activity in 2009

We examined 694 equity driven deals[1] that closed[2] in 2008 and 2009 from a population of 1529 deals, and excluded 835 non-equity-driven transactions that involved only debt refinancing, bridge loans and interim financings. These 694 equity transactions, which collectively constitute approximately 90% of total market activity over the past two years, provide for 58,296 data points[3] to analyze across three areas of focus:

- **Geographic focus.** We investigated OECD (North America, Western Europe, Australia) deals and contrasted them with emerging markets (Middle East, Asia Pacific excluding Japan, Eastern Europe, Latin America and the Indian Subcontinent) deals. We present our findings at various levels: global, developed country, emerging markets and (where significant) the emerging market country level.
- **Sector focus.** We concentrated only on economic infrastructure sectors: Oil & Gas, Power, Renewable Energy, Telecom, Transport and Water & Sewage. We excluded social infrastructure such as convention centers, facilities, defense, education, fire & rescue, healthcare and public housing.
- **Financial focus.** We analyzed transactions by size and mix of financing employed.

Additionally, when appropriate, we examined the effect of the economic crisis and various stimulus programs on the asset class and included our perspective. Our conclusions are drawn both from the quantitative data and from Citi Capital Advisors' experiences in the market in 2009.

Capital Raising

2009 was a difficult year for infrastructure fundraising, yet new funds continued to enter the market. Out of more than 70 funds targeting approximately $70 billion in capital, 60 have yet to reach final close. We estimate that around $7 billion to $11 billion was raised in 2009—a sharp contrast to the roughly $35 billion and $42 billion raised in 2008 and 2007, respectively.

Deal Activity by Number of Transactions

- Around 292 equity-driven deals closed globally in 2009. This marked a 27% decrease over 2008 activity. OECD deal activity fell by 34%. However, emerging markets were less impacted, registering just a 13% decrease. Within emerging markets there were pronounced differences: activity slowed markedly in Eastern Europe (down 41%) and Asia Pacific (down 27%), while the Indian Subcontinent saw a significant increase.
- 64% of all 2009 deal activity occurred in OECD countries. As was the case in 2008, Western Europe led the way, followed by North America.
- In terms of sector activity, the largest number of deals occurred in Renewable Energy. The second highest levels of activity were in the Power and Transport sectors, followed closely by the Oil & Gas sector. Telecom and Water & Sewage witnessed the least amount of activity.

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[1] We include the following economic sectors for our analysis: **(a) Transportation**—airports, bridges, car parks, rail, ports and terminals, roads and tunnels; **(b) Power**—clean coal, coal-fired dual fuel, gas fired, hydropower, nuclear as well as transmission & distribution; **(c) Renewable Energy**—biofuels, biomass, geothermal, wind power, photovoltaic and solar cells, etc; **(d) Water & Sewage**—aquifers, desalination plants, flood control, pipe networks, reservoirs and dams, sewage treatment, water treatment; **(e) Oil & Gas**—pipelines and a few select downstream deals; **(f) Telecom**—3G/4G, base station network, broadband cable, fiber optic cable, fixed-line, WiFi, WiMAX core infrastructure.

[2] For new projects, we included those deals that had legally binding funding commitments between equity participants and debt providers. In the case of government contracts we included equity-driven deals after a binding concession agreement was signed. For M&A deals we included only those transactions where acquirers entered into legal agreements to fund and acquire assets

[3] Calculated as (694 transactions) × (3 financial metrics) × (7 sectors) × (4 geographic blocks). Margin of error is +/- 5%. We constructed a proprietary deal data set by sourcing transaction information from industry publications, *Infrastructure Journal,* Dow Jones Factiva and proprietary Citi research.

Deal Activity by Value of Transactions

- Approximately $174.6 billion in equity-driven deals closed globally in 2009, a decrease of 24% from 2008. OECD deal value fell by 15%, while emerging markets activity decreased by 36%.
- The Transport sector fared relatively well, declining by just 8%. The largest falls in value over 2008 were in Telecom (down 58%), Oil & Gas (down 54%) and Water & Sewage (down 30%). Renewable Energy, driven principally by one very large acquisition deal was the only sector that exhibited positive growth (15%).

Average Deal Size[4]

- The global average deal size was $598 million, quite similar to that in 2008. However, just 2% of very large deals (those greater than $5 billion) skew the average upwards—the median deal size being only $206 million. Both the average deal size as well as the median deal size in emerging markets was higher than the typical OECD deal. However, of the top 10 deals that closed, just 3 were in emerging markets.
- The Transport sector had the largest average deal value, driven by a handful of mega deals. This is closely trailed by Power and Oil & Gas sector deals. Renewable Energy deals were comparatively much smaller in size.

Financing

- The average deal debt-to-equity (D/E) ratio stood at 1, a significant reduction from 1.6 in 2008. The drop reflects debt availability constraints and a greater amount of equity required for closing deals. In 2009, emerging markets deals, often government-sponsored at least in part, supported a D/E ratio of 1.61 as compared with OECD deals with an average D/E of 0.62. The average global debt to enterprise value (D/EV) ratio was around 0.5, a 19% reduction from 2008.

[4] We have not removed outliers throughout this report. While eliminating the largest and smallest deals, especially where the sample size is small, may have provided a better representation of average deal size it would have introduced data distortions and unacceptably high statistical measurement error. For example, the global average deal size for the Transport sector is $1.1 billion, biased upwards by two mega deals totaling $19.6 billion and constituting 32% of the entire sector. Eliminating these two outliers reduces the average deal size to $440 million (which perhaps is a more accurate depiction of the Transport sector). While we have *not* removed the smallest/largest deals, we have appropriately highlighted the important deals and their effect on average deal size and total value. We also provide median deal size, where relevant, for added color.

Financial Crisis and the Infrastructure Sector

Debt scarcity reduces deal activity. Infrastructure financing involves equity and debt, the latter typically being on a non-recourse basis and supported by cash flows generated by the asset. Financial institutions such as investment banks, trustees and rating agencies form part of the intermediary network that enables this relatively complex financing mechanism to come together cohesively. Project bond financing in particular has gained prominence as a viable and profitable method for raising project finance since the 1990s. Corporate and structured bonds are also the mainstay for the long-term financing of non-project infrastructure financing such as utilities. Banks, however, still remain a major source of financing for large new projects, especially specialized development banks with a mandate for financing infrastructure.

The global crisis affected the infrastructure sector in a variety of ways, the most pronounced being reduced credit availability. Debt available for deals dropped dramatically as banks' balance sheets shrank sharply and market uncertainty increased, leading to withdrawal of the underwriting market. Consequently, nearly all bank financings had to be conducted on a take-and-hold basis with a large club required for bigger deals. Market capacity for large deals fell to around $1 billion from around $5–10 billion in the prior years. At the same time, pricing for quasi-investment grade loans exceeded the pricing on junior tranches before the crisis. Banks have also become more conservative with respect to credit, resulting in decreased leverage and more structural enhancement (e.g., larger debt service reserves).

The scarcity of bank lending was not uniform across regions and subsectors. Political and strategic imperatives encouraged banks to focus on their home countries and regions, resulting in a deeper retrenchment in some regions than in others. For example, Western Europe had a disproportionate number of key infrastructure lenders, while relatively few major U.S. banks displayed appetite for lending. Consequently, the maximum credit available for a deal was greater in Western Europe than in the United States. This is partly why Western Europe saw eight mega deals—ranging from $2 billion to nearly $11 billion, while the United States witnessed just two such deals at around $2 billion each. With respect to sectors, those that were less driven by economic swings (e.g., regulated utilities as opposed to ports/airports/roads) were favored, given the widely differing views of economists as to the timing and extent of global recovery.

Bond markets, which had closed completely after the collapse of Lehman brothers, re-opened in early 2009. However, in the infrastructure space, the key beneficiaries were the straightforward long-term credits such as regulated utilities in the United States and United Kingdom.

Monoline insurers' demise slows PPP deals. The demise of monoline insurers has had a profound effect for more complex deals, notably in project finance PPP deals. The project bond market previously functioned on the tacit understanding that the monolines (and rating agencies) would perform detailed due diligence, and bond investors would rely chiefly on the monoline wrap, which often afforded the bonds a AAA rating. Without monoline insurers, the market for very long-term paper with a BBB rating (the typical underlying level of most wrapped project bonds) remains small. Governments and financial institutions have been exploring various ways of managing this dislocation, and we may see new forms of financing become prevalent to fill this gap.

Equity availability decreases. Perhaps less obviously, new equity capital had become sparser as the "denominator effect"[5] shrank future infrastructure allocations. This resulted in a sharp slowdown in the fundraising market, while at the same time listed funds were paralyzed by a collapse in share price. As the market has stabilized, many of these effects have now reversed. However, equity available remains modest relative to deal flow—a marked difference to the situation before the crisis. The effects of contraction in debt and equity have been a decrease in valuations as well as a reduction in both deal value and in the number of deals closed when compared with 2008.

[5] Due to significant declines in mark-to-market valuations of publicly listed securities, investors experienced a sharp drop in their public market allocations, leaving them over-allocated to illiquid private equity, real estate and infrastructure asset classes (which are typically marked to market on a less frequent basis).

Fewer distressed deals closed than expected. Sources of deal flow in the wider M&A market during the past two years switched from sellers wishing to realize full valuations in a strong market to forced sellers, either through distress, regulatory pressure or simply to deleverage. However, within most infrastructure subsectors, there was a significant expectation gap between sellers and buyers; potential sellers did not accept the fact that pre-crisis valuations were no longer achievable and refused to sell assets at discounts. Potential buyers meanwhile, taking a conservative view of economic uncertainty, discounted those assets significantly. The net effect was that few deals of a "forced sale" nature actually occurred.

Government support for infrastructure in emerging markets increased. Within emerging markets, countries with well-functioning domestic capital markets found it both easier and cheaper to involve private enterprises—particularly international operators—in their infrastructure sectors. Where exchange rates were fully convertible and capital could easily move in and out of the host country, infrastructure operators funded their operations at competitive international rates and were able to avoid levying a "financing premium" onto domestic infrastructure users. Moreover, many governments began to realize that the involvement of private operators may have advantages over publicly run projects when there is a potential to take advantage of the private operators' operational and administrative efficiencies (such as the technical expertise and the managerial competences of commercial operators), increased competition and enhanced services to end-consumers. There was greater acceptance that even where the public sector has access to cheaper funding than private companies, efficiency gains from private sector participation often outweighed the extra financing costs.

Increased deal activity expected coming out of recession. Overall, we regard the reduced activity in 2009 to be very much a short-term issue rather than a structural shift in infrastructure demand; the medium-term drivers of demand remain fundamentally unchanged. With credit markets recovering, we expect to see renewed activity and a resurgence of deals.

Despite the fact that many of the drivers that existed in 2009 persist, we anticipate that 2010 will be different. There is now greater macro-economic visibility, and investors no longer feel obliged to use very pessimistic assumptions in modeling deals. In addition, as sellers move from denial to acceptance regarding value, we expect that buyer and seller expectations will converge and more deals will get done. We expect debt financing to continue to remain relatively challenging, but conditions are likely to improve over 2009. Thus, for new deals, funds and investors with superior financing expertise and bank relationships will most likely benefit. We also expect the investing focus to remain on core infrastructure, with peripheral infrastructure being much harder to finance. On the government side, we expect material deal flow. Some public authorities face fiscal burdens saddling them with liquidity constraints or raising their funding costs to a point where private financing of infrastructure may appear as the cheapest—or the only feasible—option. Whether this is how governments actually approach the issue remains to be seen.

Fiscal stimulus to be supportive. Moving into 2010, OECD countries have benefited through trade linkages and strong activity growth in major emerging market economies, including China, India and Brazil. Economic activity gathered steam in some economies with the notable exception of the Euro area. In Europe, policymakers recently announced a comprehensive package in response to escalating pressures on Euro-area government bond markets. The aim of the package is to reduce the risk of significant funding problems or a liquidity shortage for European banks. The centerpiece is a €500 billion conditional mutual financial support scheme for EU sovereign states, boosted by further assistance from the IMF. Many countries have implemented major economic stimulus plans (detailed in the next section), much of which has been directed to "shovel-ready" infrastructure projects.

Post-crisis, increased investment in infrastructure is expected. The long-term consequences of the current crisis are not clear. However, as long as long-term growth potential remains unaffected, it does not lessen the need for upgrading and extending infrastructure networks. On the contrary, the crisis provides three additional reasons for increased investment in infrastructure: (a) infrastructure is a critical supply-side base for increasing competitiveness and productivity of an economy; (b) bringing forward and stepping up infrastructure investments have formed an important part of fiscal stimulus packages; and (c) the crisis underscores the importance of reducing the imbalances in the world economy and ensuring that global growth is more balanced in the future. Improvements in infrastructure help promote greater regional integration, expand demand and reduce imbalances.

Increased privatization also expected. Infrastructure has long been financed by the state, reflecting a variety of factors—its political status as a public good, state ownership, strict regulation and non-market pricing. This began to change as governments made private-sector investment more attractive by privatizing state assets, breaking up monopolies, disentangling regulation from ownership, allowing more market-oriented pricing and demonstrating a greater appetite for public-private partnerships. The general desire of governments to increase infrastructure spending is at odds with the huge challenge of reducing government debt. We anticipate that governments will be forced to reexamine privatization of existing assets, either to fund new infrastructure or simply to reduce public borrowing. The economic argument for privatization of most infrastructure has always been strong, but electorates are often opposed to privatization. However, we expect the argument to become imperative in the current climate and popular opinion to be more sympathetic given the current emphasis on improving public finances.

Stimulus Programs

Many countries have created new stimulus programs that aim to create jobs, raise incomes and support economic growth. Most economic stimulus packages have provisions for infrastructure spending through public works projects in roads, railroads, public transport, airports, childcare facilities, schools and universities, hospitals, energy networks and communication networks.

There is considerable cross-country variation in the scale of crisis measures introduced. According to the OECD, the U.S. stimulus package for infrastructure is by far the largest—around $100–150 billion, of which $17 billion has been set aside for public transit and high-speed rail; $40 billion for roads, bridges, dams and water; and $7 billion to expand broadband access. The EU has proposed concentrating on trans-European energy interconnections and broadband projects. Germany announced €11.5 billion for educational infrastructure, hospitals, transport and communication networks. The Netherlands has announced €1.2 billion in infrastructure and construction investments for health care buildings, schools, bridges and ports. Building on its crisis-related €4.7 billion infrastructure spending, Spain plans to invigorate merchandise transport by investing in a high-speed railway and to improve the road infrastructure. Italy plans to fund railway investments (€960 million) and the quality of the public transport service (about €1.5 billion over 2009–2011). In its Nation Building Package, Australia plans development work on projects in housing, health and hospitals, transport (with a focus on rail networks) and communications—approximately AUD $10 billion worth of infrastructure investment. Canada has assigned CAD $6.4 billion to renew infrastructure in partnership with provinces and municipalities and CAD $515 million to accelerate projects such as construction of schools, water and waste-water projects and critical community services infrastructure.

Table 1: Snapshot: Direct stimulus in infrastructure in select OECD countries[6]

Country	Direct Stimulus Investment in Infrastructure	Percentage of GDP (2008)
Australia	AUD 9.7 bn	0.82%
Canada	CAD 20.3 bn	1.27%
Chile	USD 700 mm	0.50%
Finland	EUR 910 mm	0.48%
France	EUR 4.7 bn	0.24%
Germany	EUR 11.5 bn	0.50%
Norway	NOK 3.8 bn	0.16%
Spain	EUR 8.0 bn	0.76%
Sweden	SEK 8.6 bn	0.27%
Poland	PLN 91.3 bn	0.07%
U.S.	USD 100 - 150 bn	0.70%

Source: CCA based on OECD estimates

The American Recovery and Reinvestment Act of 2009 (ARRA)

On February 17, 2009, President Obama signed the American Recovery and Reinvestment Act of 2009 (ARRA) into law. ARRA provides $787 billion over the next ten years, with most of the spending occurring over the first two years. Nearly two-thirds of the stimulus package is direct government spending and transfers. ARRA directs the federal government and grantees to use funds to achieve economic recovery including investing in infrastructure; it has provisions to invest nearly $100 billion in transport, $41 billion for energy-related programs and $20 billion in tax incentives for renewable energy.

ARRA allocations in infrastructure are geared toward deals where funding can be quickly deployed to create employment, such as in repair and new highway construction. The more prominent infrastructure programs include the Federal Aid Highway Surface Transportation Program and the Fixed Guideway Infrastructure Investment Program to which a combined $750 million have been apportioned.

[6] Non-OECD countries are also carrying out significant economic stimulus packages—e.g., China ($585 billion, 19% of GDP), Brazil ($152 billion, 15% of GDP), Russia ($101 billion, 8% of GDP). However the approximate amount targeted for infrastructure remains unclear.

Additional areas of focus of the ARRA program include:

- **Airports.** ARRA provides $1.1 billion for discretionary Grant-in-Aid for the Federal Aviation Administration's Airport Improvement Program. These funds are intended to be allocated to shovel-ready deals that can be completed within 2 years time.

- **Highways.** $20.4 billion has been obligated for over 8,800 projects, and $4.2 billion of that (20%) has been reimbursed. Almost half of ARRA obligations have been for pavement improvements—resurfacing, rehabilitating, and reconstructing roadways. Of the $7.5 billion in ARRA formula funding made available nationally for transit deals, $6.7 billion (88%) had been obligated through November 2009. Most of these obligations are being used to upgrade transit facilities, install enhanced bus shelters, improve bus fleets and light rail systems and conduct preventive maintenance. ARRA provides about $8.4 billion to be spent on transit in capital improvement projects.

- **Energy Efficiency and Conservation Block Grants.** This provides $3.2 billion through competitive and formula grants to units of government to improve energy efficiency and reduce energy use and fossil fuel emissions.

- **Brownfield Deals.** ARRA provides $100 million to the Brownfield Program, administered by the Office of Solid Waste and Emergency Response within the Environmental Protection Agency, for cleanup, revitalization, and sustainable reuse of contaminated properties.

- **Clean Water State Revolving Fund.** ARRA provides $4 billion to fund municipal wastewater infrastructure deals. ARRA requires states to use at least 50% of the amount of their capitalization grant to provide additional subsidization of loans to eligible recipients. In addition, to the extent there are sufficient transaction applications, at least 20% of the appropriated funds are designated for green infrastructure, water efficiency improvements or other environmentally innovative deals.

- **Build America Bonds (BABs).** Traditionally, federal tax-exempt municipal bonds served as an important capital source to state and local governments. The recession has adversely affected many state budgets and curtailed their ability to offer both general obligation and revenue bonds. The investor base in municipal bonds has largely been high-income individuals who benefit from the tax-exempt status of the bonds. In early 2009 the new issue market in municipal bonds stopped functioning. Yields increased, risk aversion increased and auctions were postponed. BABs, which were introduced as part of ARRA, are federally taxable bonds as opposed to traditional tax-exempt bonds. The BAB program is designed to provide an explicit 35% federal subsidy to borrowing costs of state and local governments to encourage investments in critical infrastructure deals. This explicit subsidy makes state and local debt more attractive by way of providing higher yields to investors.

  Over $95 billion of BABs have already been issued, which is expected to continue to expand investor interest in local and state financing and which in turn has reduced interest rates on municipal debt. This is proving to be an attractive long-term source of capital for funding infrastructure as many of these bonds are being issued with over 15-year maturities. Once state balance sheets and fiscal balances improve, investments in vital infrastructure deals that have been on hold are likely to resume.

Conclusion

Infrastructure stands to benefit from various stimulus programs, although the exact role of private capital in government-funded projects still remains unclear. Much of the infrastructure financed with stimulus capital will likely be procured through "traditional methods," i.e., state funding with private sector contractors doing the work. However, there is a significant medium-term opportunity in that governments will have increased public debt levels; just as some corporations are now selling assets to deleverage, governments may do so in the near future, thus bringing new deals and opportunities for institutional investors to the marketplace.

Fundraising and Capital Availability

Private financing role to increase. While the world's infrastructure needs continue to grow, the resources required to finance such investments are failing to keep pace. The result is a widening gap between necessary and actual levels of investment. In OECD countries there is tremendous pressure to replace, renew and maintain aging infrastructure. In non-OECD countries, demographic developments combined with growing economic, social and environmental aspirations are generating massive infrastructural needs in the areas of energy, water, transport and communications. Public budgets will not suffice to bridge the infrastructure gap. Private sector finance has traditionally had a strong presence in some infrastructure sectors in some countries; in recent years, as the share of government investment in infrastructure has declined, that of the private sector has increased, and we expect this trend to continue.

Equity capital scarcity. As mentioned earlier, 2009 was a difficult year for fundraising.[7] We estimate that around $7–11 billion was raised in 2009, yet new funds continued to enter the market.[8] Historically, approximately 150 private infrastructure funds have raised around $125 billion in equity capital. We estimate that around $50 billion remains committed but uncalled as yet. In 2010, around 20 funds have either postponed or abandoned their capital raising efforts altogether. Of the remaining 40 funds targeting around $50 billion, many have either reduced their final close targets or have had an interim close, although the fundraising outlook for 2010 appears brighter than that of last year. In its April report, Preqin estimated that around $7.9 billion was raised in Q1 2010, almost as much as the total amount raised in 2009. It is exceedingly difficult to quantify the exact private capital supply/demand mismatch as any such exercise will necessarily be predicated on a number of simplifying assumptions—such as changes in appetite of direct investors and co-investors, changes in the expected number of mergers, acquisitions and dispositions, the future mix of debt-to-equity needed to close deals, presumptions of industry and subsector growth rates, inter alia. Anecdotal evidence, however, seems to suggest that the opportunity for private fund sponsored equity in infrastructure will continue to outweigh capital availability.

Sponsor quality more important than ever now. Investors, who delayed deploying capital in 2009, are expected to increase allocations and make new commitments going forward. Among other things, the crisis will have served to help investors looking at private funds to distinguish between managers. Sponsor quality is an increasingly important differentiator. Investors will favor strong sponsors who have significant development or operational experience within their own markets or where projects are located. Investing rationales will increasingly need to consider commercial feasibility or social needs. Several factors that were previously often disregarded will take on increased significance: ownership structures and their complexity, relationships with contractors, multiple owners, potential for change of ownership and the flexibility to resolve project issues. The alignment of interests among owners, contractors and lenders will begin to matter more. Sponsor commitment as reflected in significant resources committed, time and reputation invested, higher levels of direct equity investment or guarantees combined with covenants to retain adequate capitalization will be valued. Also, skills in making correct asset selection decisions—either buying undervalued assets or those that can be refinanced subsequently in difficult environments—remains critical to differentiating sponsor quality. Financial investors, too, are expected to become more selective of the trade sponsors they invest alongside.

Infrastructure funds have not performed uniformly. In some cases, that will be very apparent to investors, with a positive/negative impact on fundraising accordingly. In other cases, it can be more difficult to gauge the performance of a fund when returns are unrealized. The fundraising cycle (averaging perhaps 3 years) is very short relative to the investment cycle of the underlying assets. Investors are expected to pay

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[7] Fundraising slowed down markedly during the past two years. In its January 2010 publication, Preqin notes that "there are currently a record number of funds on the road, with 119 unlisted infrastructure vehicles in the market targeting $114.6 bn in capital commitments. … More funds on the road are focused on Asia and the rest of world than either Europe or North America. … However, in terms of aggregate capital sought, North America and Europe focused funds are more significant, targeting $43.4 bn and $42.3 bn respectively….."

[8] Preqin, in its April Infrastructure Spotlight report, suggests that "around 100 funds are in the market seeking $88.8 bn." Examples of large funds being raised include Global Infra Partners ($5 billion), RREEF ($5.5 billion), First State European Diversified ($1.6 billion), CVC Infrastructure ($2 billion), Carlyle Riverstone Renewable Infra II ($1.2 billion), Carlyle Infrastructure Partners ($1.15 billion), ABN Amro Global ($1.1 billion) and others.

close attention to reported valuations (which will be the key driver in any returns cited), including methodology and whether they are independently assessed or are solely manager valuations.

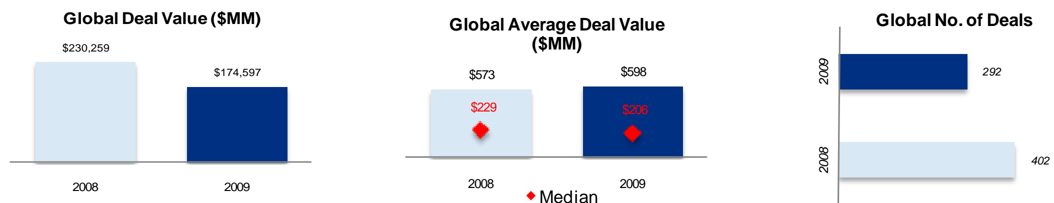
Bulk of new private capital will be deployed in OECD countries. The majority of new funds seeking capital are predominantly focused on emerging markets, where economies are expected to continue to grow strongly due to a mix of rising productivity, economic and financial reforms, and favorable demographics. Some emerging markets (such as those in the Middle East) were relatively less affected by the global economic crisis than others (such as those in Eastern Europe). In these regions, commercial bank project finance activity has been strong, and new regional equity infrastructure funds have been successfully raised. However, although there may be more funds targeting emerging markets, we expect the greater portion of volume of capital to continue to be focused on developed markets. For the most part, the multibillion dollar funds invest all or the majority (in the case of some big global funds) in OECD countries.[9] We expect this trend to persist in 2010 and in the years ahead.

[9] In its April 2010 Infrastructure Spotlight report, Preqin suggests that around 43 funds are focused on emerging markets, although the bulk of capital targeted is for North America and Europe (around $67 billion) with emerging markets funds targeting just $22 billion.

Global Deal Summary (2008/2009)

Continued uncertainty, coupled with the credit and lending constraints in the global banking industry, made it difficult in 2008 and 2009 to finance big-ticket deals that required multi-billion dollar new debt. Activity was constrained by reduced availability of bank financing, contraction in the number of banks lending in the market and the higher cost of debt. Smaller deals (less than $500 million) were largely financed by banks, but larger deals (for the most part debt refinancing transactions[10]) were financed by a combination of bank debt and bonds (other than in Western Europe, which largely remains a bank loan market). Although many M&A and greenfield[11] project financing deals came to the market, sponsor caution and difficulties in obtaining attractive financing terms caused cancellations or delays.

Charts 1, 2 and 3



- **Number of deals.** Of the 292 equity-driven deals that closed globally in 2009, the majority occurred in OECD countries (187 deals, and 64% of all activity). The total number of deals fell 27% over 2008. OECD activity fell by 34%, and activity in North America and Western Europe fell by around 32%. Emerging markets activity fell by a lesser degree (13%) but exhibited large differences across markets. Emerging markets activity slowed markedly in Eastern Europe (41%) and Asia Pacific (27%). The Indian Subcontinent[12] was the only region that had an increase in deal activity over 2008—a significant increase of 64%.

- **Deal value.** At the end of 2009, the total value of equity-driven deals that closed stood at around $174.6 billion, a 24% drop from 2008. The OECD saw $108.9 billion of new deals (a 15% decrease from 2008) in contrast to $65.7 billion for emerging markets (a 36% drop in value over 2008). The average deal size increased slightly by 4.4%, in part on account of a few mega-sized outlier transactions. The median deal size decreased by 10% from $229 million to $206 million—reflecting smaller dispersion between a few very large deals and a preponderance of smaller deals.

- **Transaction size.** The global average size per transaction was $598 million versus $573 million in 2008. However, as detailed in Chart 4, only 2% of very large deals (those greater than $5 billion) skew the average upwards—the median deal size being only $206 million. The average transaction in emerging markets was $626 million (a 27% decrease from 2008; the top 15 deals alone account for a 30% decrease year-on-year) while the typical OECD average was $583 million (a 28% increase over 2008; the top 15 deals alone account for a 21% increase year-on-year).

[10] Refinancing deals have not been included in this report for purposes of analysis.

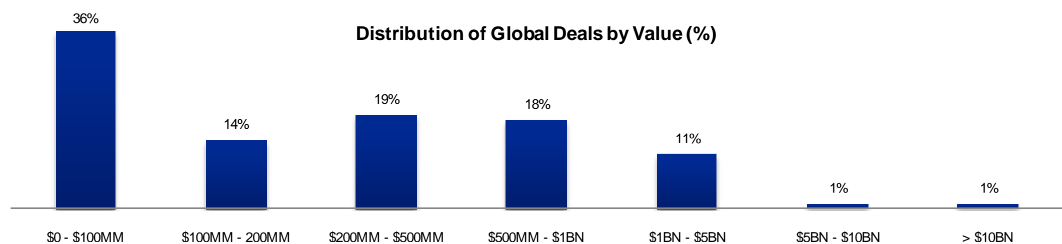
[11] With increased risk aversion, financial sponsors are reluctant to take on construction and operating risk as is the case in greenfield projects. In a greenfield project a private entity or a public-private joint venture builds and operates a *new* facility for the period specified in the project contract. The facility may return to the public sector at the end of the contract period or may remain in private ownership.

[12] In the Indian Subcontinent restrictions on large-scale investments have been greatly relaxed. Many sectors formerly reserved to the public sector have been opened up to private enterprise. Import substitution and protectionism have been replaced by an open trade regime. India has an ambitious investment program to remedy deficiencies in all key infrastructure sectors: power, roads, ports, airports, telecommunications, irrigation and urban infrastructure. While some of these investments will be undertaken through the public sector, the Indian government has called for private investment, including foreign direct investment, to play a large and growing role in achieving these targets. We expect to see continued growth in all infrastructure sectors in 2010.

Table 2: Top 10 Global Deals in 2009

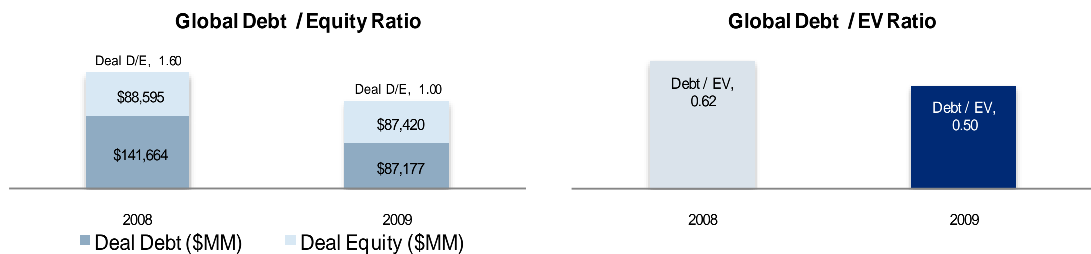
Deal Name	Deal Value ($MM)	Sector	Region	Country
Itínere	10,940	Transport	Western Europe	Spain
RWE Essent Acquisition	10,651	Renewables	Western Europe	Netherlands
Merger of Cintra and Grupo Ferrovial	8,740	Transport	Western Europe	Spain
Acquisition of Stogit & Italgas	6,334	Oil & Gas	Western Europe	Italy
Santo Antonio Hydroelectric Plant	5,409	Power	Latin America	Brazil
Jirau Hydropower Plant	5,150	Power	Latin America	Brazil
Integra Thuga Acquisition	4,358	Power	Western Europe	Germany
Victorian Desalination PPP	3,984	Water & Sewage	Australia	Australia
Berlin Brandenburg International Airport	3,976	Transport	Western Europe	Germany
Sasan UMPP	3,900	Power	Indian subcontinent	India

Chart 4



- In terms of deal distribution, the largest segment (36%) was less than $100 million by value.
- The $100 to $500 million space saw over half of all transactional activity.
- Deals less than $500 million in size constitute around 69% of all global activity.
- Just 2% of all deals that closed were greater than $5 billion.

Charts 5 and 6

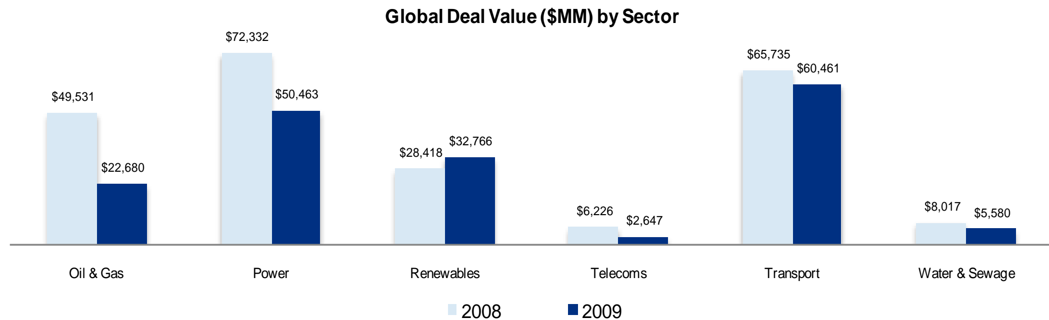


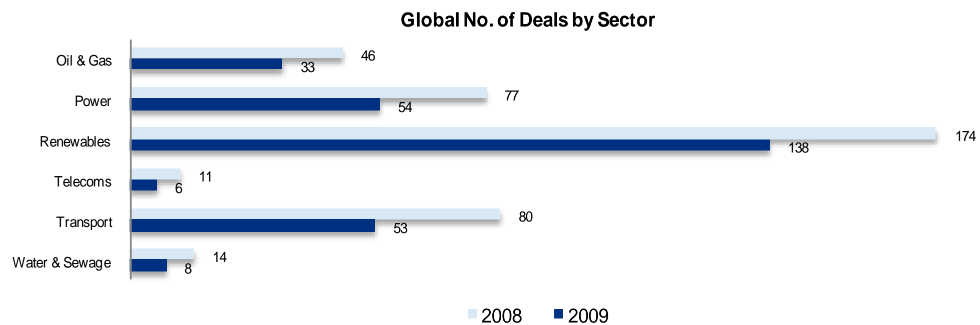
- **Financing.** The average deal debt-to-equity ratio (D/E) stood at 1, a significant 38% reduction from 1.6 in 2008. The drop reflects continued debt availability constraints and heightened risk aversion, coupled with continuing economic uncertainty. Considerably more sponsor equity was required to close deals. The average debt to enterprise value (D/EV) ratio was around 0.5, a 19% reduction from 0.62 in 2008. Emerging markets deals in 2009, often government-sponsored in part,[13] supported more debt (D/E = 1.61, D/EV = 0.62) than OECD deals (D/E = 0.75, D/EV = 0.43).

[13] Public authorities are often heavily involved in emerging market project economics, both at the decision-making and financing stages. This increases the various facets of political risk from completion risk to mere counterparty risk in availability-based projects.

Global Sector Analysis (2008/09)

Charts 7 and 8

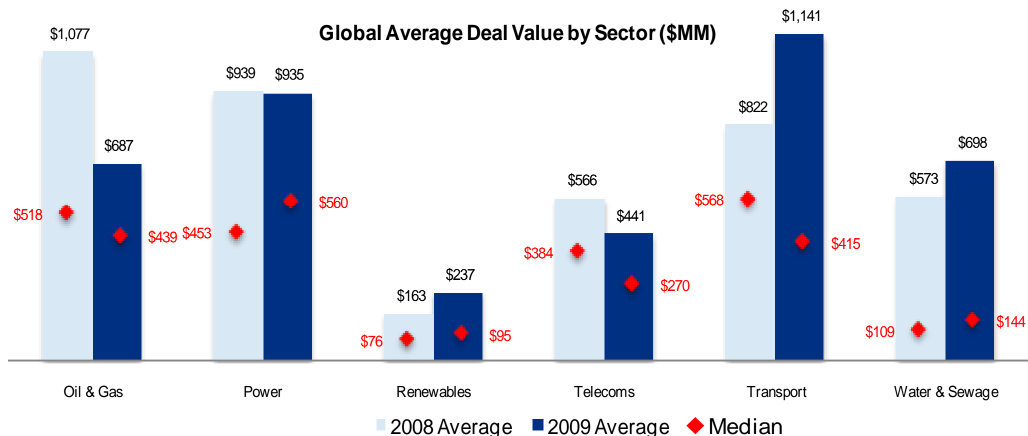




- **Deal value:** In terms of value, the Transport sector remained resilient with the highest amount of deal closure ($60.5 billion, a modest 8% drop from 2008), followed by the Power sector ($50.4 billion, a 30% drop from 2008). The largest fall in value (57%) was in Telecom (albeit on a very small base) followed by the Oil & Gas (54%) sector. Water & Sewage, with $5.6 billion of global activity, reduced 30% from 2008; the sector saw just one mega deal close in Australia—similar to 2008 which also saw only one mega deal close in the United Kingdom. Renewable Energy, with $32.8 billion of new equity transactions driven principally by one very large acquisition deal, was the only sector that exhibited positive growth (15%).

- **Number of deals:** All sectors saw a fall in number of deals closed. Telecom fell 45%, Water & Sewage fell 43%, Transport fell 34%, while Power and Oil & Gas fell by 30% and 28% respectively. Telecom and Water & Sewage saw the least amount of activity—less than 10 deals each.

Chart 9



Transport. The Transport sector, on account of a few mega deals, had the largest average deal value of $1.1 billion. After excluding[14] the largest five deals (Itínere, Merger of Cintra and Grupo Ferrovial, Berlin Brandenburg International Airport, Gatwick Airport Sale, M25 Widening PPP) the average deal size is $665 million.

> "Transportation assets that are dependent on volume and periodic price increases to support their debt obligations have been adversely impacted across the board in this downturn. Performance on most of these assets indicates that a bottom was found in 2009, and there has been a flattening of demand and in some cases a modest return to growth. Toll-road assets, which are more directly correlated to economic activity, show a stronger sign that they may soon reach stability. Airports, with a greater exposure to discretionary corporate and leisure travel, appear to also be close to a bottom, except for the risk they face from airline financial, network, and capacity decisions."[15]

Power. Power sector deals had the second highest average deal value, at $935 million. After excluding the largest four deals—Santo Antonio Hydroelectric Plant, Jirau Hydropower Plant, Integra Thuga Acquisition and Sasan UMPP—the average deal size is $633 million.

> "In 2009, reduced electricity demand due to the global economic downturn and persistently low natural gas prices characterized challenging market environments for power projects. Facilities with fixed-price capacity payments and tolling arrangements for fuel and energy pricing exhibited the highest degree of cash flow stability. Hydropower and efficient natural gas-fired generators in this class experienced declines in cash flow and debt service coverage in 2009 but are not expected to worsen in 2010, with an expectation for modest improvement."[16]

Oil and gas. After excluding one large outlier deal—the large acquisition of Stolgit & Italgas for $6.3 billion—the sector had an average size of $511 million.

> "The oil and gas pricing environment is expected to improve modestly in 2010. LNG terminals saw minimal re-gasification activity in 2009, and the situation is unlikely to change in 2010 without continuing improvement in gas pricing. Natural gas prices have recovered somewhat from the 2009 trough and are expected to continue rising in response to increased demand from overall improvement in the economy. As with thermal power facilities, LNG terminals with fixed-price take-or-pay usage contracts were resilient. Petroleum refinery projects experienced significantly compressed refining margins in 2009 and pricing conditions are expected to persist in 2010, gradually moderating as the general economy improves and demand for refined products

[14] Excluded deals: refer to footnote 4 for this and subsequent cases where specific deals have been excluded.

[15] Adapted from Fitch Ratings project finance reports to provide sector outlook.

[16] Ibid

increases. Oil pipeline projects with merchant capacity exposure face similar demand risk, although pipeline capacity pricing is generally more stable than commodity prices."[17]

Water & sewage[18]: After excluding the large Victorian Desalination PPP in Australia, the average deal size for the sector is $228 million.

"Water and sewer utilities overall appear well positioned to continue generating solid financial performance to bondholders throughout the current economic cycle. Despite ongoing capital pressures the Water & Sewer sector sustained fiscal health. As expected, particular regions and classes of utilities are facing greater near-term stress than others. Capital costs are down but debt levels will continue to climb, albeit at a reduced rate from prior estimates. Debt service coverage remains strong, but cash flows are showing some weakening. Liquidity continues to be exceptionally healthy and has even improved and user costs remain very affordable, offsetting some concerns regarding forecasted escalating rate hikes. Near-term concerns revolve more around political willingness to raise rates to generate full cost recovery in the current economy."[19]

Renewable energy: After excluding the large RWE Essent acquisition in the Netherlands, the average deal size for the sector is $161 million—the lowest across all sectors.

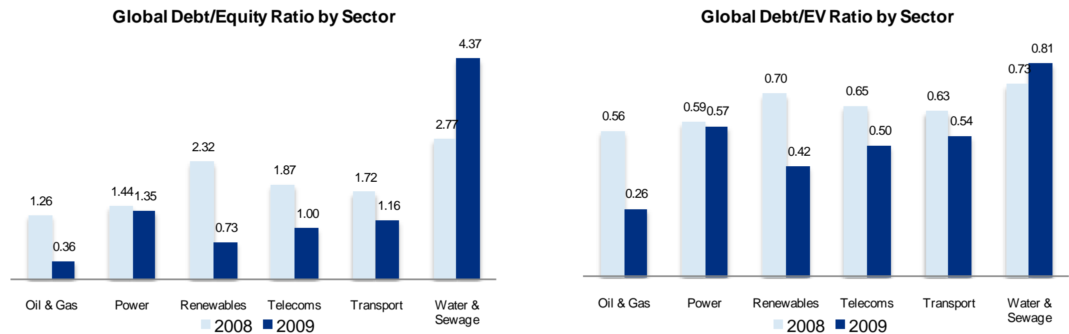
The Renewable Energy sector has been strongly driven by subsidy regimes and sector-driven legislation: e.g., some U.S. states require utilities to purchase a percentage of their power from renewable energy sources. Government support is expected to continue as OECD governments enact initiatives to increase sources of clean energy by way of reduced tariffs, tax credits and other incentives. For instance, the 2009 American Recovery and Reinvestment Act has created new programs that make direct payments in lieu of tax credits to companies that create and place in service Renewable Energy facilities. This is expected to positively impact biomass, solar, wind and other types of production facilities. Also, the European Bank for Reconstruction and Development (EBRD) recently unveiled plans to boost investments in sustainable energy deals filling in the financing gap created by traditional lenders. Another catalyst has been the EU's insistence that new member nations conform to higher environmental standards.

[17] Ibid

[18] Investment in water infrastructure has varied greatly globally. In general, water services require high rates of capital and maintenance investment with a low return on assets (typically 5%). Nevertheless, returns are lower risk. While the populations of much of Western Europe and North America now have effectively full access to water and sanitation services, there is a considerable shortfall in emerging markets. The major factors driving capital investments in developed countries are regulatory compliance, growth and the age of the infrastructure. We therefore expect sizeable future outlays to the water & sewage sector in emerging markets.

[19] Ibid footnote 17

Charts 10 and 11



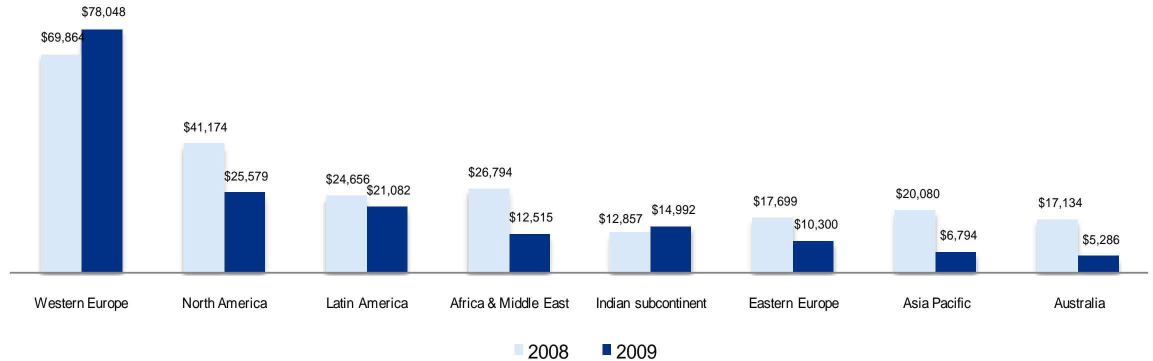
- Water & Sewage projects, albeit measured on a small number of transactions, supported the largest D/E ratio of 4.3. Excluding one large deal—Victorian Desalination PPP— the ratio is reduced to 3.
- Power saw the second highest amount of debt being employed followed by Transport and Telecom.
- Except for Water & Sewage, all sectors saw the D/E ratio reduce over 2008. The effect was most pronounced for Oil & Gas (71%), Renewable Energy (69%) and Telecom (47%).

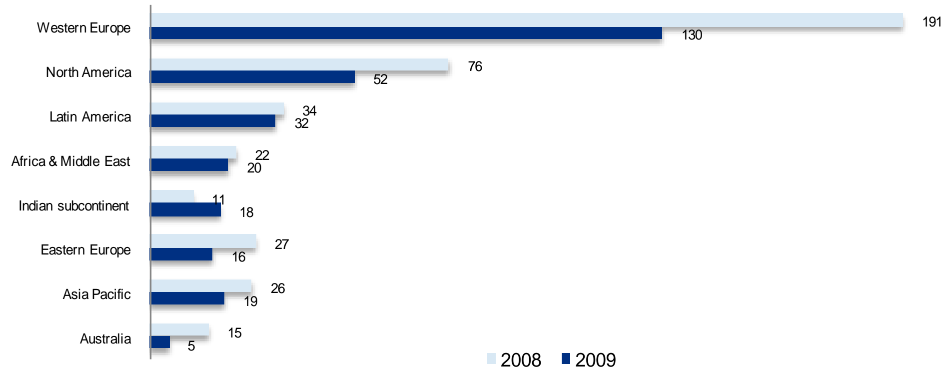
Table 3: Top 5 Global Deals by Sector in 2009

Sector	Deal Name	Deal Value ($MM)	Country
Oil & Gas	Acquisition of Stogit & Italgas	6,334	Italy
	Acquisition of Union Fenosa	1,434	Spain
	Fayetteville Express Pipeline	1,340	United States
	BG Group acquisition in Haynesville Shale	1,300	United States
	Brahmaputra Gas Cracker	1,287	India
Power	Santo Antonio Hydroelectric Plant	5,409	Brazil
	Jirau Hydropower Plant	5,150	Brazil
	Integra Thuga Acquisition	4,358	Germany
	Sasan UMPP	3,900	India
	Rabigh IPP	2,503	Saudi Arabia
Renewables	RWE Essent Acquisition	10,651	Netherlands
	150MW Palma Saetilla	1,280	Spain
	KESTREL 14 Wind Farms Portfolio	1,118	Spain
	Bligh Bank Offshore Wind Farm 165MW Phase I	987	Belgium
	Bord Gais Acquisition of SWS	755	Ireland
Telecoms	Indonesia NTS GSM roll-out	800	Indonesia
	Neotel Fixed Line Network Expansion	779	South Africa
	Ghana Mobile Telecoms Network Expansion	438	Ghana
	Measat Satellite Project	330	Malaysia
	Embratel Expansion	200	Brazil
Transport	Itínere	10,940	Spain
	Merger of Cintra and Grupo Ferrovial	8,740	Spain
	Berlin Brandenburg International Airport	3,976	Germany
	Gatwick Airport Sale	2,477	United Kingdom
	M25 Widening PPP	2,399	United Kingdom
Water & Sewage	Victorian Desalination PPP	3,984	Australia
	Disi Water PPP	951	Jordan
	Moscow Sodium Hypochlorite (NaOCl) Plant	274	Russia
	Aguas Del Huesna II Extension	124	Spain
	Hadera Desalination Expansion	93	Israel

Regional Deal Summary (2008/09)

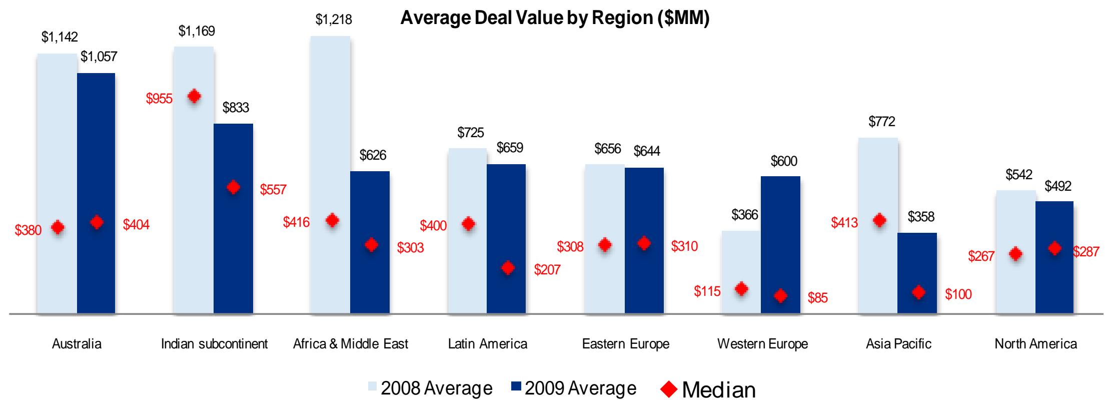
Charts 12 and 13





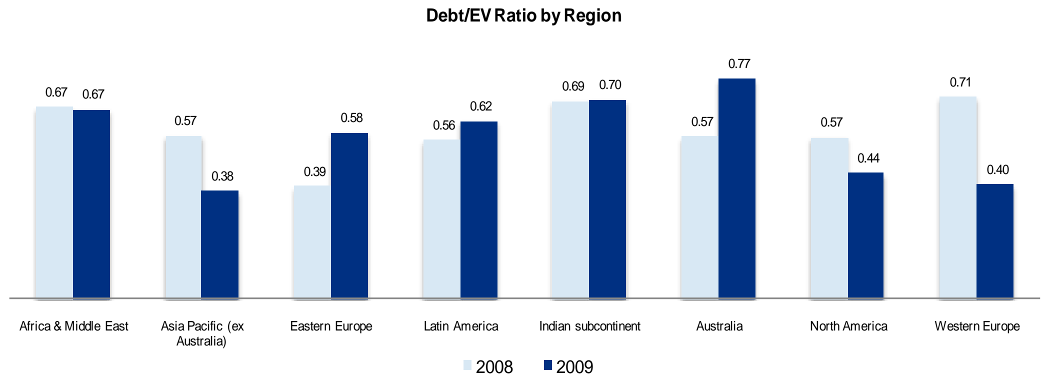
- Western Europe, followed by North America, saw the largest amount of activity by both number of transactions and aggregate value. Latin America had the third largest amount of activity by deal value, with two large Brazilian deals totaling $10.5 billion, followed by deals in the Indian Subcontinent.
- All regions, except the Indian Subcontinent (which saw deal value rise by 17%) and Western Europe (deal value increased 12%), saw a decrease in deal value over 2008. The largest declines were in Australia (69%), Asia Pacific (66%), Africa and Middle East (53%) and Eastern Europe (42%). North America declined roughly 38%.

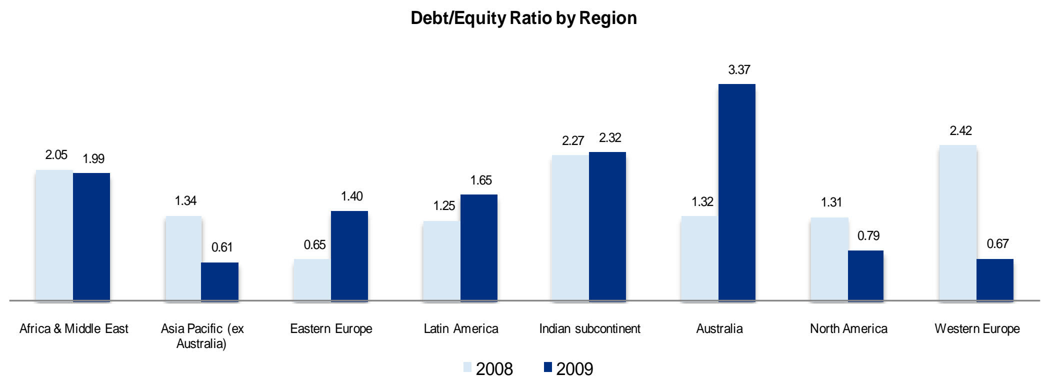
Chart 14



- **Australia.** Excluding a very large Australian deal—the Victorian Desalination PPP, valued at $4 billion—the average deal size in Australia was around $326 million.
- **Indian Subcontinent.** Excluding the Sasan Ultra Mega Power Plant valued at $3.9 billion, the average Indian deal size was around $652 million.
- **Africa and Middle East.** Excluding two of the largest deals—the Rabigh IPP and Al Dur IWPP—the average deal size was around $438 million.
- **Latin America.** Excluding two very large Brazilian deals—the $5.4 billion San Antonio Hydroelectric Plant and the $5.1 billion Jirau Hydropower Plant—the average deal size was around $351 million.
- **Eastern Europe.** Excluding A2 Toll Road PPP Phase II in Poland, the average deal size was $539 million.
- **Western Europe.** Excluding the top 5 mega deals—Itínere, RWE Essent Acquisition, Merger of Cintra and Grupo Ferrovial, Acquisition of Stogit & Italgas and Integra Thuga Acquisition—the average deal size was around $296 million.
- **Asia Pacific.** Excluding the large PowerSeraya acquisition in Singapore, the average deal size was roughly $256 million.

Charts 15 and 16





- D/EV ratios fell across North America, Western Europe and Asia Pacific.
- In Australia, the D/E ratio after excluding the Victorian Desalination PPP deal was a modest 1.3.
- For the Indian Subcontinent, even after excluding the 3x leveraged Sasan UMPP deal, the D/E ratio was 2.13—the highest in any region.
- Western European and North American D/E ratios were less than most emerging market ratios.

OECD vs. Emerging Markets Deal Summary in 2009

OECD. Within OECD countries, many projects with weak economic profiles that could previously easily access capital markets faced negative headwinds. Projects with stable contractual arrangements—take-or pay contracts, low break-even prices and cost-recovery provisions, long-term off-take agreements—managed to navigate the crisis better than others. Some assets that were dependent on volume and periodic price increases to support their debt obligations were adversely impacted because of slowing demand. Many previously planned private sector sponsored projects were put on hold or have been restructured, slowing new deal closures. As a consequence, we expect that a backlog of 2008/2009 deals will attempt to secure financing, bringing renewed activity to the market.[20]

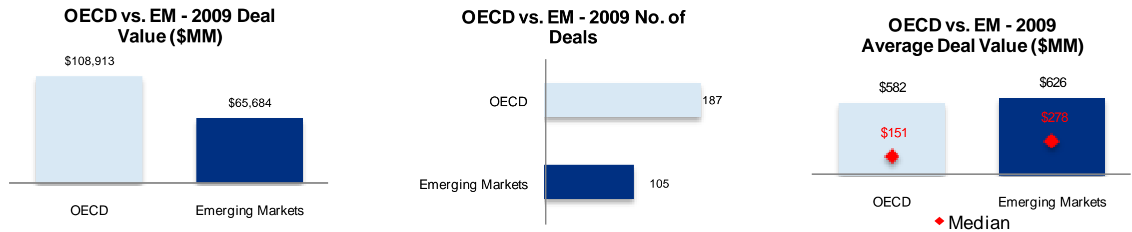
Emerging markets. In general, emerging markets withstood the financial crisis somewhat better and recovered faster than developed countries. Nevertheless, both the aggregate value as well as the number of deals reaching closure declined in 2009. Deals that did close were invariably sponsored by developers with sterling reputations and in priority sectors. 2009 demonstrated that the general investment climate is among the most important prerequisites for the successful close of privately invested infrastructure projects. The outcome of projects depended strongly on the quality of the political, economic and regulatory environment in which they took place. In some countries, such as in India and Brazil, large greenfield power plant projects backed by strong sponsors and government support were able to raise financing. Multilateral and export credit agency financing, as well as government-directed state-owned bank financing (rather than private commercial banks), also provided a substantial measure of funding.

Additionally, until recently the use of foreign-currency-denominated debt to finance infrastructure projects was the rule in most emerging markets. These projects were dependent on local currency revenues and exposed them to exchange risks: the so-called double mismatch problem that sparked the 1997 Asian financial crisis, the second part coming from the mismatch from the maturity side. Recent evolution in long-term bond market developments and investment guidelines that enable banks, insurance companies, pension and provident funds, and other financial institutions to finance infrastructure projects will be important drivers of future activity. As a parallel measure, some countries have set up facilities to mobilize long-term funds for channeling to infrastructure projects.

In 2010, Asia's recovery remains on track, although positive data surprises have narrowed substantially and momentum may be peaking. With the exception of India and China, inflation has remained largely subdued. The delay in the expected Fed hikes in the United States will likely significantly delay policy normalization across many countries in Asia, although most will likely have to hike ahead of the Fed given divergent growth/inflation momentum. Within Latin America the momentum of growth continues with some economies like Brazil growing at unsustainable levels. This should prompt some countries like Brazil and Peru to continue tightening rates, and Chile to slowly start hiking in the coming months. In Central Europe, Russia and Turkey are expected to stage strong rebounds in GDP this year, but otherwise it remains the case that CEEMEA is a weak link in emerging markets growth; the spillover from the crisis in the Eurozone is likely to be negative on balance. We believe that over the medium term, emerging markets continued growth will depend heavily on investments in infrastructure.

[20] For details on the infrastructure logjam refer to "Outlook for Infrastructure: 2009 and Beyond," available at http://www.freshfields.com/industries/infrastructure/

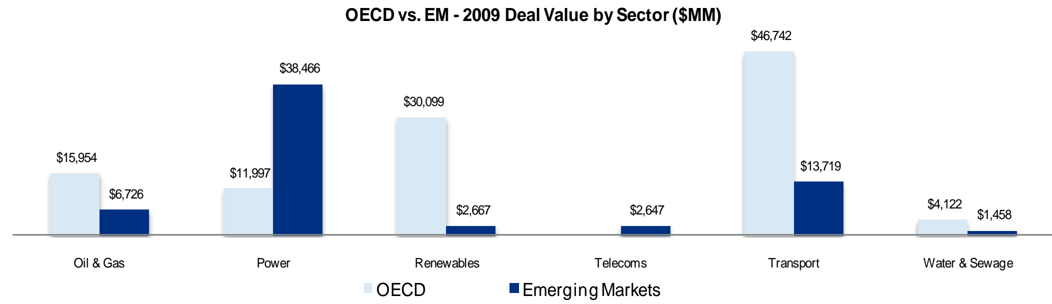
Charts 17, 18 and 19

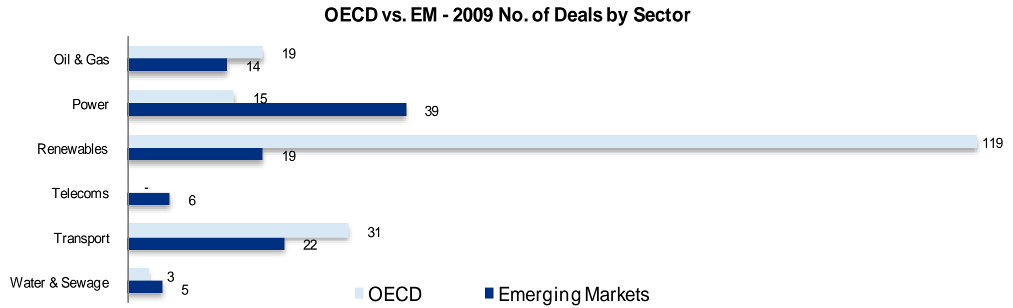


- **OECD activity.** Of the 187 deals that closed, the bulk were in Western Europe (130), followed by North America (52), while Australia had just 5. In terms of value, OECD total transaction value fell 15% from 2008 to a cumulative $108.9 billion. Western Europe total value was $78 billion (a 12% increase over 2008); North America was $25.6 billion (a 38% decrease from 2008); and Australia was $5.3 billion. OECD constituted 64% of global deals by number and 62% by value. Activity declined 15% by value and 34% by number of transactions over 2008. The average deal size (influenced by a few mega deals) increased 28%. The D/EV ratio was 0.43, a 34% decline from 2008.

- **Emerging markets activity.** Emerging markets constituted 36% of global deals by number. Activity declined 36% by value and 13% by number of transactions over 2008, as did the average deal size (27%). The D/E ratio was 1.6, a 17% increase over 2008. The D/EV ratio was 0.62, a 6.5% increase over 2008. Of the 105 deals that closed, the largest number of transactions were in Latin America (32 deals valued at $21 billion, which include two mega Brazilian Power deals). Africa and the Middle East saw 20 deals totaling $12.5 billion (a 53% drop from 2008). The Indian Subcontinent saw 18 deals aggregating $14.9 billion.

Charts 20 and 21





- **Activity by value:** Except in the Power sector, OECD countries had far greater deal volume than emerging markets countries. This was especially pronounced in Renewable Energy (11.3x more), Transport (3.4x), Water & Sewage (2.8x), Oil and Gas (2.4x). However, in the Power sector activity was around 3.2x more in emerging markets than that in OECD countries.

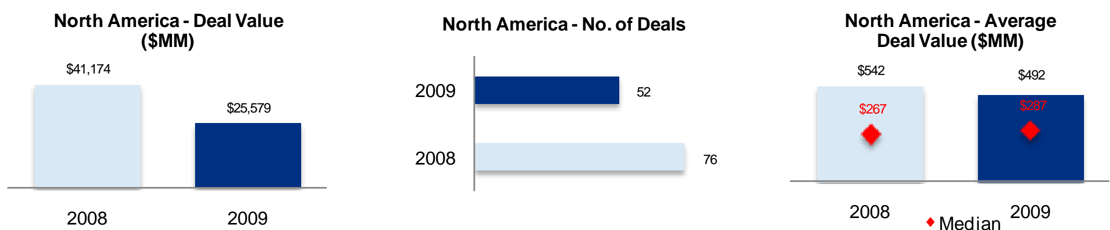
North America Deal Summary (2008/2009)

The focus of this section is largely the United States, although Canadian[21] deals have been aggregated as well for purposes of geographic analysis. Despite the recession, or perhaps in part because of it, the infrastructure sector has gained media, public and government attention. The American Society of Civil Engineers (ASCE) estimates the cost of restoring infrastructure at $1.6 trillion over the next five years. According to the Government Accounting Office, U.S. water infrastructure needs “are estimated to range from $485 billion to nearly $1.2 trillion over the next 20 years.” The National Surface Transportation Policy and Revenue Study Commission recommended that “all levels of government and the private sector collectively need to invest at least $225 billion each year to maintain and improve the surface transportation system”—$140 billion more each year.

The bulk of this will be financed by government with sizeable opportunity for the private sector to participate. In the United States, municipal bond markets (debt) have traditionally complemented private capital (equity). Historically, the majority of all public infrastructure spending has been financed out of general government revenues. The collapse of the housing market has driven down property taxes, and the recession has depressed sales taxes on which state and local governments and municipalities depend. The economic slowdown has also contributed to reducing motor fuel tax revenue on which many federal and local transportation programs depend. While some public sector infrastructure projects will of course always be driven by government-sponsored funding, there is now wider scope for the private sector to complement government outlays.

In 2010, renewed risk aversion and eroding liquidity stemming from recent events in Europe pose threats to the financial stability necessary for a continued U.S. economic recovery. However, mounting evidence suggests that strong profits have prompted new spending and that new hiring may support healthy labor income as government supports fade. Nonetheless, the setback in the financial recovery suggests that monetary policy may need to remain focused on maximum accommodation. Limited private credit demand is also expected to delay upward cyclical pressures on interest rates. Despite the latest setback in Europe, data have revealed that the recovery has solid momentum. The United States is still benefiting from substantial policy support. Fed policy remains easy and the multiplier effects from earlier fiscal policies are still rippling through the economy.

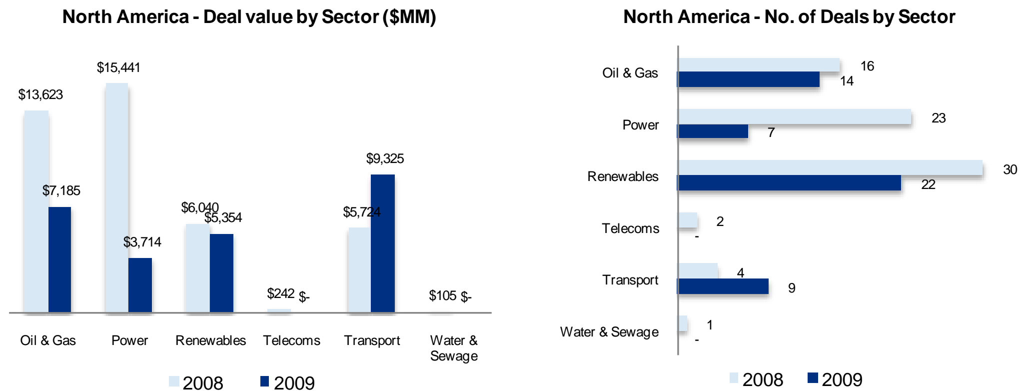
Charts 22, 23 and 24



- Total deal value fell 38%, and the number of deals fell 32% from 2008.
- The amount of debt that was available to consummate deals reduced 52%, sizably more than the aggregate equity reduction of 20%; the D/E ratio in effect fell by around 40%, reflecting constraints in the credit market. 17% more equity was required to close deals than in 2008.
- The average deal size declined 9%.

[21] In Canada, approximately 60% of infrastructure is over 40 years old. There is a significant infrastructure deficit with approximately $125 billion required for repairs and rehabilitation and another $115 billion in new infrastructure needs. For example, Alberta has a short-term capital plan to invest over $23 billion from 2009 to 2012, and a 20-year $120 billion plan. British Columbia plans to invest $16.7 billion from 2009 to 2012. The Federal government is committed to investing $33 billion from 2007 to 2014, and the Federal budget for 2009/2010 has a $12 billion infrastructure package.

Charts 25 and 26



- The Transport sector had the largest total deal value followed by Oil & Gas and Renewable Energy. Transport recorded a 63% increase largely on account of two $2 billion deals (the 17th and 18th largest deals in the world): the North Tarrant Express P3 Segment 1 and the METRO Solutions Phase 2 LRT.

- Activity slowed down across remaining sectors; the reduction was especially pronounced in Power (76%), Oil & Gas (47%), and Renewable Energy (11%).

- The Power sector saw just one large deal: the $1.3 billion Astoria Energy Phase II transaction. By contrast, in 2008 four deals each greater than $1 billion were closed: TransCanada Ravenswood Acquisition, North American Energy Alliance Acquisition of Con Edison Power Plants, Topaz Holdings Gas-Fired Power Plant Repowering/Construction and the TrAIL Interstate Transmission Line.

- In Oil & Gas, 2009 saw just two medium-size deals at around $1.3 billion each—Fayetteville Express Pipeline and BG Group acquisition in Haynesville Shale. By contrast, in 2008 two very large transactions (the $6.2 billion NGPL-Myria Acquisition 80% stake in MidCon and the $2.4 billion Southern Lights Pipeline deal) contributed around 63% to the sector.

Table 4: Top 10 North America Deals in 2009

Deal Name	Deal Value ($MM)	Sector	Country
North Tarrant Express P3 Segment 1	2,051	Transport	United States
METRO Solutions Phase 2 LRT	2,000	Transport	United States
Florida I-595 Highway Upgrade PPP	1,668	Transport	United States
Astoria Energy Phase II	1,372	Power	United States
Fayetteville Express Pipeline	1,340	Oil & Gas	United States
BG Group Acquisition in Haynesville Shale	1,300	Oil & Gas	United States
Chicago Parking Meters Project	1,150	Transport	United States
Wake County Toll Road North Carolina	1,002	Transport	United States
Port of Miami Tunnel P3	862	Transport	United States
Midland Cogen Acquisition	745	Power	United States

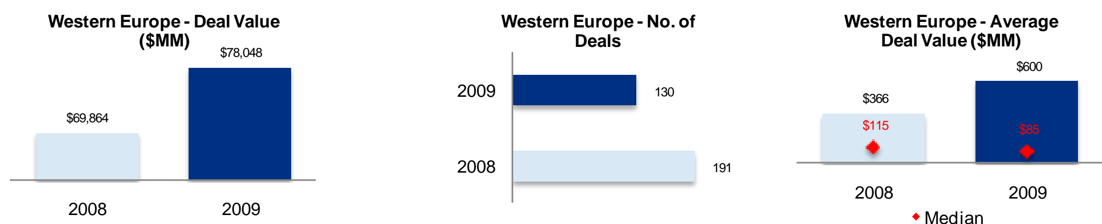
Western Europe Deal Summary (2008/2009)

According to EIB commentary, major structural changes have taken place in the financing and provision of infrastructure services in Europe. In most EU member countries, public investment—investment directly financed from the budget of the government—has been declining since the 1970s. At the same time, the last 10 to 15 years have seen the emergence of privately financed and produced infrastructure services, starting in the United Kingdom in the early 1990s and spreading subsequently to continental Europe. The stock of public capital has continued to grow in all but a few countries, despite more recent downtrends in public investment. In other words, the downtrend simply reflects the fact that public investment in infrastructure has been growing more slowly than GDP, but it has still grown. In most countries, this growth has been sufficiently high to cover depreciation and a further build-up of public capital stocks, albeit at a rate that has been slowing down. In the new EU member countries in Central and Eastern Europe, the need for upgrading infrastructure assets in the context of their economic transition has coincided with the need for fiscal stringency, which could in principle have caused a detrimental squeeze on infrastructure investment. Overall, outside the United Kingdom, private financing and provision of infrastructure remains limited in terms of value, number of projects and sectoral distribution.

In Western Europe the environment was challenging in 2009. Governments saw lower tax proceeds from personal income tax, corporate income tax or VAT and from property deals. Despite this, many local governments have professed to boosting capital expenditures to augment economic activity. Interest in PPP remains strong and has been reiterated by support from the European Economic Recovery Plan. There has been a trend in recent years for infrastructure to be financed on a project basis or purchased/developed by the private sector; PPPs in infrastructure have provided an option for capital funding not available from public funds as well as a means of enhancing service delivery by employing private-sector entities to supply physical infrastructure and services.

In 2010 new opportunities are expected to arise in M&A or in brownfield deals. European investment in Transport infrastructure, largely privately financed, is expected to see a reduction in activity. Also, the mix between private capital contributed and government/multilateral/development bank grants is expected to change. We expect to see activity uptick in Italy, Spain and Germany. While the recent European Stabilization Mechanism and ECB asset purchases have helped to contain the spill-over of the sovereign debt crisis, additional austerity measures in the fiscally most strained countries will increase the GDP growth differentials between the Euro area countries in 2010. With expected broader fiscal tightening overall GDP growth is expected to be further muted. However, the creation of the European Stabilization Mechanism and the accompanying announcements of the ECB have, at least for the time being, eliminated the prospect of sovereign liquidity crises turning into sovereign solvency crises and the prospect of major EU bank failures.

Charts 27, 28 and 29

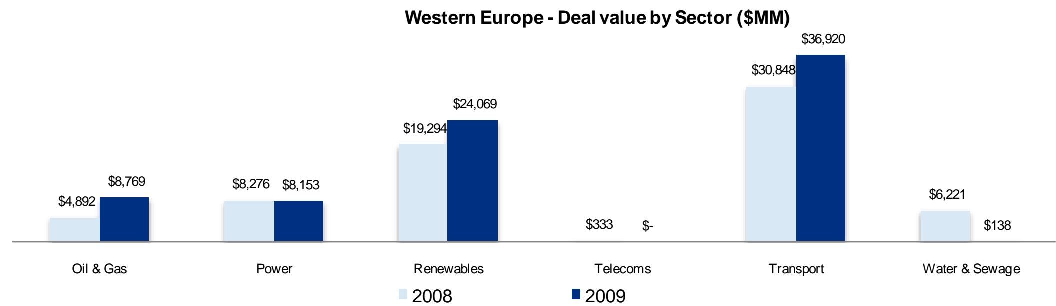


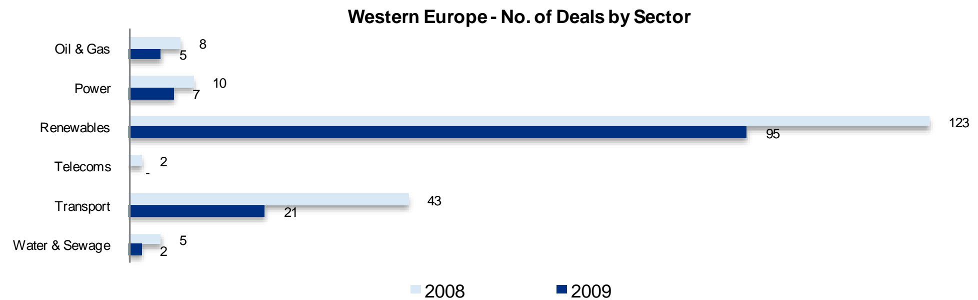
- Total Western Europe deal value increased 12% over 2008. The amount of debt available to consummate deals reduced 37%; the D/E ratio fell by around 73% reflecting constraints in the credit market. The average deal size increased 64% (driven in part by two mega deals in Spain). The median deal size ($85 million) declined 26% over 2008.

Table 5: Top 10 Western Europe Deals in 2009

Deal Name	Deal Value ($MM)	Sector	Country
Itínere	10,940	Transport	Spain
RWE Essent Acquisition	10,651	Renewables	Netherlands
Merger of Cintra and Grupo Ferrovial	8,740	Transport	Spain
Acquisition of Stogit & Italgas	6,334	Oil & Gas	Italy
Integra Thuga Acquisition	4,358	Power	Germany
Berlin Brandenburg International Airport	3,976	Transport	Germany
Gatwick Airport Sale	2,477	Transport	United Kingdom
M25 Widening PPP	2,399	Transport	United Kingdom
Acquisition of Union Fenosa	1,434	Oil & Gas	Spain
Sorgenia CCGTs—Lodi and Aprilia	1,421	Power	Italy

Charts 30 and 31





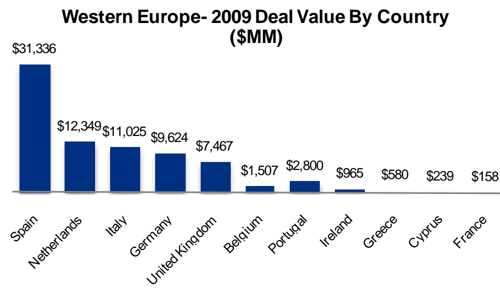
- Transport and Renewable Energy saw the highest levels of deal activity by total value. Within Transport, two mega deals—Itínere ($10.9 billion) and the merger of Cintra and Grupo Ferrovial ($8.7 billion)—collectively represented around 53% of all activity. In Renewable Energy, one mega deal (RWE Essent, $10.7 billion) contributed 44% to sector activity.

- Oil & Gas saw a sizeable 79% increase in activity by value over 2008. The increase in Renewable Energy was 25% and in Transport was around 20%.

- Water & Sewage activity has traditionally been a relatively small component of aggregate infrastructure activity. In 2008, however, there was a mega transaction—the $6.2 billion Saltaire acquisition of Kelda Group in the United Kingdom. While it appears that Water & Sewage sector activity reduced drastically from 2008 to 2009 (98%), once corrected for the large Kelda transaction the reduction in activity was modest: $337 million in 2008 compared with $138 million in 2009.

- Aggregate activity in the Power sector remained at similar levels to that in 2008.

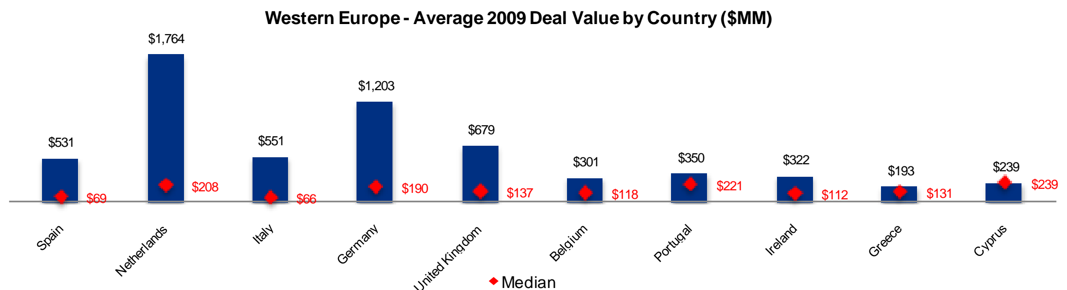
Charts 32 and 33



Some countries had mega deals that helped propel Europe to its status of the most active market:

- **Spain:** Two mega deals—Itínere ($10.9 billion) and the merger of Cintra and Grupo Ferrovial ($8.7 billion)—constituted 63% of total activity.
- **Netherlands:** One mega deal—RWE Essent Acquisition ($10.6 billion)—comprised 86% of activity.
- **Italy:** One mega deal—the acquisition of Stogit & Italgas ($6.3 billion)—comprised 57% of total activity.
- **Germany:** Two large deals—Integra Thuga Acquisition ($4.3 billion) and Berlin Brandenburg International Airport ($3.9 billion)—comprised 85% of total activity.

Chart 34



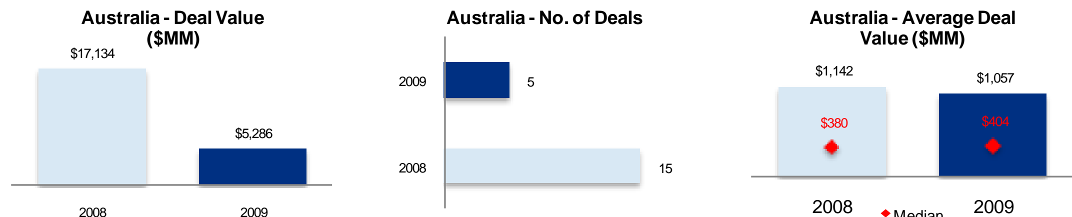
- **Spain:** Excluding Itínere and the merger of Cintra and Grupo Ferrovial, the average deal value reduces to $204 million.
- **Netherlands:** Excluding one mega deal—RWE Essent Acquisition, the average deal value reduces to a more representative $283 million.
- **Italy:** Excluding one mega deal—the acquisition of Stogit & Italgas, the average deal value reduces to $247 million.
- **Germany:** Excluding Berlin Brandenburg International Airport and Integra Thuga acquisition deals, the average deal value reduces to $215 million.
- **United Kingdom:** Excluding Gatwick Airport Sale and M25 Widening PPP deals, the average deal value reduces to a more representative $288 million.

Australia Deal Summary (2008/2009)

The government remains the dominant player in Australia, as greenfield projects fail to raise debt from banks. In addition to supporting deals, a number of policy steps are expected to catalyze sector development. This includes legislation that calls for a unified regulation for PPP development as well as the newly created Infrastructure Partnership Australia initiative for PPP deals which advocated federal debt guarantees for nationally significant projects. The 2009 mid-year budget increased outlays for infrastructure to complement private sector funding and created provisions to support climate change pilot deals. In response to the global financial crisis, a AUD$22 billion stimulus was introduced to invest in Energy, Transport and Communication. This is expected to attract private capital and co-investments.

The level of government and private sector expenditure on infrastructure has lifted markedly, partly in response to the commodities boom. Also, in the Australian context, the major challenge seems to be to improve pricing and regulatory arrangements, rather than just increasing the total volume of infrastructure. Australia's new National Reform Agenda builds on and continues the National Competition Policy reform program, focusing on reform in the areas of energy, transport and infrastructure regulation. However, important implementation details are yet to be determined, particularly in relation to electricity market reform and road and rail freight infrastructure pricing, so reform outcomes remain uncertain. In light of regulatory delays for infrastructure development, regulatory decision-making time is expected to be closely monitored as part of a broader agreement on arrangements for a simpler and consistent national approach to the economic regulation of significant infrastructure. The second half of 2009 saw a resurgence in deal activity, although many deals have been debt refinance and recapitalizations rather than new project investments.

Charts 35, 36 and 37



- Australia saw five equity-driven deals close in 2009.
- There was a 70% reduction in equity-driven deal activity. Other than the large Victorian Desalination PPP deal, the rest were relatively small compared with those in 2008 (which had the mega Alinta Acquisition 3 deal valued at $7.8 billion).
- The D/E ratio increased by 155% over 2008, driven materially by the 5.1x leveraged Victorian Desalination PPP deal.
- The median deal size increased by around 6.4%.
- Excluding the Victorian Desalination PPP deal, the average deal value was $326 million.

Table 6: Top Australian Deals in 2009

Deal Name	Deal Value ($MM)	Sector
Victorian Desalination PPP	3,984	Water & Sewage
Privatization Queensland Airports—Cairns, Mackay	497	Transport
132.3MW Hallett 4 Wind Farm Acquisition	404	Renewables
Waterloo Wind Farm 111MW	271	Renewables
ANZ Acquisition in Neerabup Power	130	Power

Global Deal Pipeline

Infrastructure offers opportunities for investors. Increased private sector participation in infrastructure is arguably not a panacea, but it is part of the solution in meeting infrastructure needs. In order to create sustainable infrastructure projects, it is critical to find a balance between investment and development outcomes and to shift toward a hybrid financing model that involves the main stakeholders: government, donors and multilateral agencies, private sector (domestic and foreign) and consumers. The roles of governments and private businesses are evolving with changing technology and innovation, and consequently the private market is slowly assuming more responsibility for the provision of infrastructure. The world is replete with opportunities for such participation.

We estimate that there is a healthy pipeline[22] of 1,352 transactions (equity deals as well as debt refinancing transactions) valued at more than $1 trillion at various stages of tendering or contracting. Naturally many of these transactions will remain stuck in the procurement process and are unlikely to conclude over the next few years. In terms of geographic distribution, the breakup between OECD and emerging markets is quite even. Roughly 46% of pipeline deals by value are in OECD countries—largely in Western Europe, which constitutes around 44% of total OECD pipeline. The balance of the pipeline is in emerging markets. We note that there is higher uncertainty of emerging markets deals to be translated to actual closure. The pipeline also includes very large outliers with low probability of progressing. Oil & Gas ($450 billion), Transport ($451 billion), and Power transactions ($306 billion) are expected to attract the bulk of investment over the next few years.

Oil & gas. The sector is expected to see heightened activity in 2010. Saudi's Yanbu Refinery will be a massive new transaction that is expected to commence operations in the next three years, as is a new complex envisaged at Ras Tanura Petrochemicals—expected to cost upwards of $10 billion. In OECD countries, some of the more important deals that are in the pipeline include Gorgon LNG in Australia, Kitimat LNG in Canada and Continental Epe Gas storage in Germany. There are some mega deals (mostly refinancing plays) in the Energy and Oil & Gas sectors that are expected to close in 2010: PNG LNG, Nord Stream and Jubail Refinery, which are cumulatively valued at around $32.5 billion

Transportation. Notable deals that are expected to close in 2010 include the Birmingham Highway maintenance in the United Kingdom, D1 in Slovakia, A1 in Poland, the N17 / N18 roads transaction in Ireland, the Mafraq-Ghweifat Highway in Abu Dhabi and the N1/N2 Protea Parkway in South Africa.

Power. Notable deals that are expected to close in 2010 include the Al Qatrana transaction in Jordan, the Barka 3 and Sohar 2 in Oman, the PP11 Power plant in Saudi Arabia, the Nuevo Pemex transaction in Mexico and some new power plants in India.

Renewable energy. The Renewable Energy sector has received considerable government incentives which have created a healthy pipeline of small to medium-size deals. Notable deals that are expected to close in 2010 include a biomass facility at Teesside in the United Kingdom; wind farms in Meerwind, Germany and Nantucket Sound in the United States; and Tarfaya in Morocco.

In addition to these mainly greenfield opportunities, we also expect a significant pipeline of corporate disposals, although these are generally less visible in advance. Corporate disposals are often driven by similar reasons as privatizations: divestment of non-core assets and delevering of balance sheets. The dislocation in credit markets and uncertain growth outlook resulted in 2009 being dominated by balance sheet restoration in the form of capital raisings and asset sales with M&A activity limited to very few investor-led takeovers. As financial markets heal and cash flows recover, companies are likely to be reconsidering their growth options; we expect that there will be more strategic acquisitions and disposals as well as M&A activity in the next few years.

[22] Here we refer to pipeline as activity (all activity *including refinancing* and not solely equity-driven transactions) at various stages of contracting prior to financial closure—i.e., tendering, RFP issued, prequalification, letter of intent, agreement approved, feasibility study concluded, contract negotiation in progress, etc. We stress that this is a very rough estimation of deals in the pipeline.

Conclusion

Credit availability will remain tight, but will improve over 2009. Prior to the crisis it was common to raise senior debt with long tenors. Spreads were minimal, as were restrictive covenants. Also, a large circle of banks was active in syndication markets. Equity financing, as reflected in the number of new infrastructure funds raised as well as direct investments made by many institutional investors, was easier to obtain. The favorable credit conditions prevailing before the financial crisis are not expected to return in the short term. Infrastructure debt markets have been characterized by a reduction in debt volume, wider spreads and higher fees, markedly reduced tenors and a near shutdown of the syndication market. Equity and mezzanine markets have also changed. While equity capital in dedicated funds remains available, these funds, given widely differing views on buy/sell price, have not been rushing to transact. New deals are expected to face higher financing costs as well as suffer from the lower demand affecting some sectors. Those deals that are able to raise financing will face more stringent conditions and have lower D/E ratios, shorter tenors and more conservative structures.

Infrastructure, as an asset class, is increasingly important within institutional portfolios. Traditional sources for financing infrastructure have been debt, public budgets and national and local taxes. These will come under mounting strain as competition for limited public resources increases, thus creating greater scope for private capital participation. There is a growing recognition that mobilizing capital from private domestic sources is essential to developing sustainable infrastructure finance. The nature of infrastructure as an asset class continues to appeal to institutional investors such as insurance companies and pension funds due to their long-term investment periods and need to generate a stream of long-term cash flows consistent with their objectives. We believe that institutional investors are becoming increasingly important capital providers to the sector because there is a shortage of good long-term substitute assets to match their long-term (often inflation linked) liability streams.

Positive outlook for the asset class. The pace of economic recovery remains uncertain, but economic growth, however anemic, bodes well for infrastructure. With credit markets now unlocked, we expect to see more long-term, amortizing debt funding becoming available—deals that were not closed in 2008 and 2009 are expected to come to market and likely to exceed existing funding capacity. Private investment is expected to play a growing role in the medium term, but the success of efforts to attract private capital will depend critically on the economic, political, regulatory and legal environment in each country. Worldwide, stimulus programs have been announced and are already being implemented. Stimulus has largely been directed to support public infrastructure projects, and its impact on private deals remains unclear although many subsectors stand to benefit. However, many private funds continue to struggle to raise capital as investors hold back and carry out more due diligence than they did in the past—which perhaps is a good development overall for the industry in bringing about greater fund sponsor differentiation.

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- Volatility of returns
- Restrictions on transferring interests in the fund
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- Less regulation and higher fees than mutual funds and
- Investment manager risk

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